We claim:

1. An antimicrobial composition comprising a plurality of hexapeptides

wherein for each hexapeptide, the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan;

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid; and

wherein the first two amino acids of said hexapeptides are other than arginine-arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

- The antimicrobial composition of claim 1 wherein the amino acids in the first and second positions of said peptides, based on numbered amino acids from N-terminus to Cterminus, are selected from the group consisting of Arg-Tyr, Arg-Cys, Ser-Thr, Met-Trp, Lys-Trp, Thr-Trp, Trp-Arg, Trp-His, and Trp-Tyr.
- The antimicrobial composition of claim 1 wherein said peptides are incorporated into a polymer.
- 4. The antimicrobial composition of claim 3 wherein said polymer is selected from the group consisting of a polysaccharide, a glycol polymer, a polyseter, a polyurethane, a polyacrylate, a polyacrylonitrile, a polyamide, a polyolefin, a polystyrene, a vinyl polymer, a polypropylene, silk, a biopolymer, and mixtures thereof.
- 5. An antimicrobial composition comprising a plurality of peptides, wherein said peptides

each are represented by Formula I:

Formula I || R1 C [(X)n] NH

wherein:

X represents any amino acid except glutamate or aspartate;

n = 6:

 $R_1 \ is \ C_1-C_{20} \ alkyl; \ C_3-C_6 \ eycloalkyl; \ C_4-C_{20} \ alkenyl; \ C_4-C_{20} \ alkynyl; \ C_1-C_{20} \ haloalkynyl; \ C_2-C_{20} \ alkoxyalkyl; \ C_2-C_{20} \ alkylthioalkyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_2-C_{20} \ alkynyloxyalkyl; \ C_4-C_{20} \ (eycloalkyl) \ oxyalkyl; \ C_4-C_{20} \ alkenylthioalkyl; \ C_4-C_{20} \ alkenylthioalkyl; \ C_4-C_{20} \ alkenylthioalkyl; \ C_4-C_{20} \ alkynylthioalkyl; \ C_4-C_{20} \ alkynylthioalkyl; \ C_4-C_{20} \ alkynylthioalkyl; \ C_4-C_{20} \ alkoxyalkylthioalkyl; \ C_4-C_{20} \ alkoxyalkynyl; \ C_4-C_{20} \ alkoxyalkynyl; \ C_4-C_{20} \ alkoxyalkynyl; \ C_4-C_{20} \ alkylthioalkynyl; \ C_4-C_{20} \ alkylthioalkyny$ 

 $R_3$  is independently hydrogen;  $C_1$ - $C_4$  alkyl; or phenyl optionally substituted with at least one  $R_4$ :

 $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one  $R_8$ :

 $R_{5}$  is independently  $C_{1}$ - $C_{6}$  alkyl;  $C_{1}$ - $C_{6}$  alkoxy;  $C_{1}$ - $C_{6}$  haloalkyl; halogen;  $C_{2}$ - $C_{5}$  alkynyl;  $C_{1}$ - $C_{6}$  thioalkyl; phenyl or phenoxy each optionally substituted with at least one  $R_{5}$ ; cyano; nitro;  $C_{1}$ - $C_{6}$  haloalkoxy;  $C_{1}$ - $C_{6}$  haloalkoxy;  $C_{1}$ - $C_{6}$  haloalkythio;  $C_{2}$ - $C_{6}$  alkenyl;  $C_{2}$ - $C_{6}$  haloalkenyl; acetyl;  $C_{2}$ - $C_{6}$  haloalkyl;  $C_{3}$ - $C_{6}$ - $C_{6}$ - $C_{6}$ - $C_{6}$ - $C_{6}$ - $C_{7}$ 

 $R_{\rm e}$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;  $R_{\rm r}$  is independently halogen; and

 $R_4$  is independently halogen;  $C_1$ - $C_4$  alkyl;  $C_1$ - $C_4$  alkoxy;  $C_1$ - $C_4$  haloalkyl; nitro; or evano;

## wherein:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan; and

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid;

wherein the first two amino acids of said hexapeptides are other than arginine arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

- 6. The antimicrobial composition of claim 5 wherein the amino acids in the first and second positions of said peptides, based on numbered amino acids from N-terminus to C-terminus, are selected from the group consisting of Arg-Tyr, Arg-Cys, Ser-Thr, Met-Trp, Lys-Trp, Trp-Arg, Trp-His, and Trp-Tyr.
- The antimicrobial composition of claim 5 wherein said peptides are incorporated into a polymer.
- 8. The antimicrobial composition of claim 7 wherein said polymer is selected from the group consisting of a polysaccharide, a glycol polymer, a polyseter, a polyurethane, a polyacrylate, a polyacrylonitrile, a polyamide, a polyolefin, a polystyrene, a vinyl polymer, a polypropylene, silk, a biopolymer, and mixtures thereof.
- 9. An antimicrobial composition comprising a plurality of peptides, wherein said peptides

each are represented by Formula II:

Formula II R<sub>1</sub> — C — [(X)<sub>n</sub>] — NH — R<sub>2</sub>

wherein:

X represents any amino acid except glutamate or aspartate;

n = 6:

 $R_1 \text{ is } C_1 - C_{20} \text{ alkyl}; \ C_3 - C_6 \text{ cycloalkyl}; \ C_4 - C_{20} \text{ alkenyl}; \ C_4 - C_{20} \text{ alkynyl}; \ C_1 - C_{20} \text{ haloalkynyl}; \ C_2 - C_{20} \text{ alkoxyalkyl}; \ C_2 - C_{20} \text{ alkylthioalkyl}; \ C_2 - C_{20} \text{ alkylthioalkyl}; \ C_2 - C_{20} \text{ alkylthioalkyl}; \ C_2 - C_{20} \text{ alkynyloxyalkyl}; \ C_3 - C_{20} \text{ alkynyloxyalkyl}; \ C_4 - C_{20} \text{ alkenyloxyalkyl}; \ C_4 - C_{20} \text{ alkoxyalkyl}; \ C_4 - C_{20} \text{ alkoxyalk$ 

 $R_2 \ is \ C_1-C_{20} \ alkyl; \ C_3-C_6 \ cycloalkyl; \ C_4-C_{20} \ alkenyl; \ C_4-C_{20} \ alkynyl; \ C_1-C_{20} \ haloalkenyl; \ C_2-C_{20} \ haloalkenyl; \ C_2-C_{20} \ haloalkenyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_2-C_{20} \ alkynyloxyalkyl; \ C_4-C_{20} \ alkenyloxyalkyl; \ C_4-C_{20} \ alkenyloxyalkyl; \ C_4-C_{20} \ alkenyloxyalkyl; \ C_4-C_{20} \ alkenyloxyalkyl; \ C_4-C_{20} \ alkenylthioalkyl; \ C_4-C_{20} \ alkynylthioalkyl; \ C_4-C_{20} \ alkynylthioalkyl; \ C_4-C_{20} \ alkynylthioalkyl; \ C_4-C_{20} \ alkoxyalkyl; \ C_4-C_{20} \ alkoxyalkyl; \ C_4-C_{20} \ alkoxyalkyl; \ C_4-C_{20} \ alkoxyalkylthioalkenyl; \ C_4-C_{20} \ alkoxyalkylthioalkenyl; \ C_4-C_{20} \ alkylthioalkenyl; \ C_4-C_{20} \ alkylthioalkylthyl; \ C_4-C_{20} \ alkylthioalkylthylthioalkenyl; \ C_4-C_{20} \ alkylthioalkylthio; \ N_3, \ R_6, \ and \ R_7; \ C_1-C_{20} \ alkoxy; \ C_1-C_{20} \ haloalkoxy; \ C_1-C_{20} \ alkylthio; \ N_3, \ R_4; \ or \ phenyl, \ pyrinidinyl, \ benzoftranyl, \ benzoftr$ 

quinolinyl each optionally substituted with R5, R6 or R7;

 $R_3$  is independently hydrogen;  $C_1$ - $C_4$  alkyl; or phenyl optionally substituted with at least one  $R_6$ :

 $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one  $R_8$ ;

 $R_{s}$  is independently  $C_{1}$ - $C_{6}$  alkyl;  $C_{1}$ - $C_{6}$  alkoxy;  $C_{1}$ - $C_{6}$  haloalkyl; halogen;  $C_{2}$ - $C_{8}$  alkynyl;  $C_{1}$ - $C_{6}$  thioalkyl; phenyl or phenoxy each optionally substituted with at least one  $R_{8}$ ; cyano; nitro;  $C_{1}$ - $C_{6}$  haloalkoxy;  $C_{1}$ - $C_{1}$ - $C_{1}$ - $C_{2}$ - $C_{1}$ - $C_{2}$ - $C_{3}$ - $C_{4}$ - $C_{5}$ - $C_{5}$ - $C_{5}$ - $C_{6}$ - $C_{7}$ 

 $R_s$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;  $R_s$  is independently halogen; and

 $R_{s} \ is \ independently \ halogen; \ C_{1}\text{-}C_{4} \ alkyl; \ C_{1}\text{-}C_{4} \ alkoxy; \ C_{1}\text{-}C_{4} \ haloalkyl; nitro; or cyano;$ 

## wherein:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan; and

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid.

- 10. The antimicrobial composition of claim 9 wherein the amino acids in the first and second positions of said peptide, based on numbered amino acids from N-terminus to C-terminus, are selected from the group consisting of Arg-Tyr, Arg-Cys, Ser-Thr, Met-Trp, Lys-Trp, Trp-Arg, Trp-His, and Trp-Tyr.
- 11. The antimicrobial composition of claim 9 wherein said peptides are incorporated into a

polymer.

12. The antimicrobial composition of claim 11 wherein said polymer is selected from the group consisting of a polysaccharide, a glycol polymer, a polyseter, a polyurethane, a polyacrylate, a polyacrylonitrile, a polyamide, a polyolefin, a polystyrene, a vinyl polymer, a polypropylene, silk, a biopolymer, and mixtures thereof.

13. An antimicrobial composition comprising a plurality of hexapeptides and at least one carrier, wherein for each hexapeptide:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan;

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid; and

wherein the first two amino acids of said hexapeptides are other than arginine-arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

- 14. The antimicrobial composition of claim 13 wherein the amino acids in the first and second positions of said peptides, based on numbered amino acids from N-terminus to C-terminus, are selected from the group consisting of Arg-Tyr, Arg-Cys, Ser-Thr, Met-Trp, Lys-Trp, Trp-Arg, Trp-His, and Trp-Tyr.
- 15. The antimicrobial composition of claim 13 wherein said carrier is selected from the group consisting of a pharmaceutically acceptable carrier, an industrially acceptable carrier, a household product, and a personal care composition.

16. An antimicrobial composition comprising a plurality of hexapeptides and at least one carrier, wherein said each hexapeptide is represented by Formula I:

quinolinyl each optionally substituted with R<sub>5</sub>, R<sub>6</sub> or R<sub>7</sub>;

wherein:

X represents any amino acid except glutamate or aspartate;

n = 6;

 $R_1 \text{ is } C_1\text{-}C_{20} \text{ alkyl}; C_3\text{-}C_6 \text{ cycloalkyl}; C_4\text{-}C_{20} \text{ alkenyl}; C_4\text{-}C_{20} \text{ alkynyl}; C_1\text{-}C_{20} \text{ haloalkynyl}; C_2\text{-}C_{20} \text{ haloalkynyl}; C_2\text{-}C_{20} \text{ alkoxyalkyl}; C_2\text{-}C_{20} \text{ alkylthioalkyl}; C_2\text{-}C_{20} \text{ alkylsulfinylalkyl}; C_2\text{-}C_{20} \text{ alkylsulfinylalkyl}; C_2\text{-}C_{20} \text{ alkynyloxyalkyl}; C_4\text{-}C_{20} \text{ alkenyloxyalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkenyl}; C_4\text{-}C_{20} \text{ alkoxya$ 

 $R_3$  is independently hydrogen;  $C_1$ - $C_4$  alkyl; or phenyl optionally substituted with at least one  $R_4$ ;

 $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one  $R_9$ :

R<sub>3</sub> is independently C<sub>1</sub>-C<sub>6</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkyl; halogen; C<sub>2</sub>-C<sub>8</sub> alkynyl; C<sub>1</sub>-C<sub>6</sub> thioalkyl; phenyl or phenoxy each optionally substituted with at least one R<sub>8</sub>; cyano; nitro; C<sub>1</sub>-C<sub>6</sub> haloalkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkythio; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> haloalkenyl; acetyl; CO<sub>5</sub>CH<sub>3</sub>; or N(C<sub>1</sub>-C<sub>2</sub> alkyl).;

 $R_{\rm e}$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl; and

R, is independently halogen;

 $R_{a} \ is \ independently \ halogen; \ C_{1}\text{-}C_{4} \ alkyl; \ C_{1}\text{-}C_{4} \ alkoxy; \ C_{1}\text{-}C_{4} \ haloalkyl; nitro; or cyano;$ 

wherein:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan; and

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid;

wherein the first two amino acids of said hexapeptides are other than arginine-arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

- 17. The antimicrobial composition of claim 16 wherein the amino acids in the first and second positions of said peptides, based on numbered amino acids from N-terminus to C-terminus, are selected from the group consisting of Arg-Tyr, Arg-Cys, Ser-Thr, Met-Trp, Lys-Trp, Trp-Arg, Trp-His, and Trp-Tyr.
- 18. The antimicrobial composition of claim 16 wherein said carrier is selected from the group consisting of a pharmaceutically acceptable carrier, an industrially acceptable carrier, a household product, and a personal care composition.
- 19. An antimicrobial composition comprising a plurality of hexapeptides and at least one carrier, wherein said each hexapeptide is represented by Formula II:

wherein:

X represents any amino acid except glutamate or aspartate;

n = 6;

 $R_1 \text{ is } C_1 - C_{20} \text{ alkyl; } C_3 - C_6 \text{ cycloalkyl; } C_4 - C_{20} \text{ alkenyl; } C_4 - C_{20} \text{ alkynyl; } C_1 - C_{20} \text{ haloalkynyl; } C_2 - C_{20} \text{ alkoxyalkyl; } C_2 - C_{20} \text{ alkylsulfinioalkyl; } C_2 - C_{20} \text{ alkenyloxyalkyl; } C_4 - C_{20} \text{ alkoxyalkoxyalkyl; } C_4 - C_{20} \text{ alkoxyalkenyl; } C_4 - C_{20} \text{ alkoxyalkynyl; } C_4 - C_{20} \text{ alkyloxyalkyl; } C_4 - C_{$ 

$$\begin{split} R_2 &\text{ is } C_1\text{-}C_{20} &\text{ alkyl}; C_3\text{-}C_6 &\text{ cycloalkyl}; C_4\text{-}C_{20} &\text{ alkenyl}; C_4\text{-}C_{20} &\text{ alkynyl}; C_1\text{-}C_{20} &\text{ haloalkyl}; \\ C_3\text{-}C_{20} &\text{ haloalkenyl}; C_3\text{-}C_{20} &\text{ haloalkynyl}; C_2\text{-}C_{20} &\text{ alkynylkyl}; C_2\text{-}C_{20} &\text{ alkylsulfinylalkyl}; C_2\text{-}C_{20} &\text{ alkylsulfinylalkyl}; C_2\text{-}C_{20} &\text{ alkynyloxyalkyl}; C_4\text{-}C_{20} &\text{ alkenyloxyalkyl}; C_4\text{-}C_{20} &\text{ alkoxyalkenyl}; C_4\text{-}C_{20} &\text{ alkoxyalkeny$$

R<sub>3</sub> is independently hydrogen; C<sub>1</sub>-C<sub>4</sub> alkyl; or phenyl optionally substituted with at least one R<sub>4</sub>;

- $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one R.:
- $R_5$  is independently  $C_1$ – $C_6$  alkyl;  $C_1$ – $C_6$  alkoxy;  $C_1$ – $C_6$  haloalkyl; halogen;  $C_2$ – $C_8$  alkynyl;  $C_1$ – $C_6$  thioalkyl; phenyl or phenoxy each optionally substituted with at least one  $R_8$ ; cyano; nitro;  $C_1$ – $C_6$  haloalkoxy;  $C_1$ – $C_6$  haloalkythio;  $C_2$ – $C_6$  alkenyl;  $C_2$ – $C_6$  haloalkenyl; acetyl;  $C_3$ – $C_6$  haloalkyl),;
  - R<sub>6</sub> is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;
  - R7 is independently halogen; and
- $R_8$  is independently halogen;  $C_1$ - $C_4$  alkyl;  $C_1$ - $C_4$  alkoxy;  $C_1$ - $C_4$  haloalkyl; nitro; or evano.
- 20. The antimicrobial composition of claim 19 wherein the amino acids in the first and second positions, based on numbered amino acids from N-terminus to C-terminus, are selected from the group consisting of Arg-Tyr, Arg-Cys, Ser-Thr, Met-Trp, Lys-Trp, Thr-Trp, Trp-Arg, Trp-His, and Trp-Tyr.
- 21. The antimicrobial composition of claim 19 wherein said carrier is selected from the group consisting of a pharmaceutically acceptable carrier, an industrially acceptable carrier, a household product, and a personal care composition.
- 22. A method for preventing, inhibiting, or terminating the growth of at least one microbe comprising administering an antimicrobial amount of a plurality of hexapeptides and at least one carrier, wherein for each hexapeptide:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from N-

terminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan;

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid: and

wherein the first two amino acids of said hexapeptides are other than arginine-arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

- 23. The method of claim 22 wherein said microbe comprises Burkholderia cepacia.
- 24. A method for preventing, inhibiting, or terminating the growth of at least one microbe comprising administering an antimicrobial amount of a plurality of peptides and at least one carrier, wherein said peptides are each represented by Formula I:

Formula I

wherein:

X represents any amino acid except glutamate or aspartate;

n = 6:

 $R_1 \text{ is } C_1\text{-}C_{20} \text{ alkyl; } C_3\text{-}C_6 \text{ cycloalkyl; } C_4\text{-}C_{20} \text{ alkenyl; } C_4\text{-}C_{20} \text{ alkynyl; } C_1\text{-}C_{20} \text{ haloalkyl; } C_3\text{-}C_{20} \text{ haloalkenyl; } C_3\text{-}C_{20} \text{ haloalkynyl; } C_2\text{-}C_{20} \text{ alkylsulfinioalkyl; } C_2\text{-}C_{20} \text{ alkylsulfinioalkyl; } C_2\text{-}C_{20} \text{ alkylsulfinioalkyl; } C_2\text{-}C_{20} \text{ alkenyloxyalkyl; } C_4\text{-}C_{20} \text{ alkoxyalkyl; } C_4\text{-}C_{20} \text{ al$ 

quinolinyl each optionally substituted with R<sub>5</sub>, R<sub>6</sub> or R<sub>7</sub>;

$$\begin{split} &R_2\text{ is }C_1\text{-}C_{20}\text{ alkyl}; C_3\text{-}C_6\text{ cycloalkyl}; C_4\text{-}C_{20}\text{ alkenyl}; C_4\text{-}C_{20}\text{ alkynyl}; C_1\text{-}C_{20}\text{ haloalkyl}; \\ &C_3\text{-}C_{20}\text{ haloalkenyl}; C_3\text{-}C_{20}\text{ haloalkynyl}; C_2\text{-}C_{20}\text{ alkoxyalkyl}; C_2\text{-}C_{20}\text{ alkylthioalkyl}; C_2\text{-}C_{20}\text{ alkenyloxyalkyl}; \\ &C_3\text{-}C_{20}\text{ alkynyloxyalkyl}; C_4\text{-}C_{20}\text{ alkenyloxyalkyl}; C_3\text{-}C_{20}\text{ alkenyloxyalkyl}; C_4\text{-}C_{20}\text{ alkenyloxyalkyl}; \\ &C_4\text{-}C_{20}\text{ alkynyloxyalkyl}; C_4\text{-}C_{20}\text{ (cycloalkyl) oxyalkyl}; C_4\text{-}C_{20}\text{ alkenylthioalkyl}; C_4\text{-}C_{20}\text{ alkynyloxyalkyl}; C_4\text{-}C_{20}\text{ alkenyloxyalkyl}; C_4\text{-}C_{20}\text{ alkoxyalkenyl}; C_4\text{-}C_{20}\text{ haloalkenyloxyalkyl}; C_4\text{-}C_{20}\text{ alkoxyalkenyl}; C_4\text{-}C$$

 $R_3$  is independently hydrogen;  $C_1$ - $C_4$  alkyl; or phenyl optionally substituted with at least one  $R_4$ :

 $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one  $R_4$ ;

 $R_s$  is independently  $C_1$ - $C_6$  alkyl;  $C_1$ - $C_6$  alkoxy;  $C_1$ - $C_6$  haloalkyl; halogen;  $C_2$ - $C_8$  alkynyl;  $C_1$ - $C_6$  thioalkyl; phenyl or phenoxy each optionally substituted with at least one  $R_8$ ; cyano; nitro;  $C_1$ - $C_6$  haloalkoxy;  $C_1$ - $C_6$  haloalkythio;  $C_2$ - $C_6$  alkenyl;  $C_2$ - $C_6$  haloalkenyl; acetyl;  $C_2$ - $C_6$  haloalkoxy;  $C_1$ - $C_2$  alkyl)<sub>2</sub>;

 $R_6$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;  $R_7$  is independently halogen; and

 $R_a \ is \ independently \ halogen; \ C_1 - C_4 \ alkyl; \ C_1 - C_4 \ alkoxy; \ C_1 - C_4 \ haloalkyl; \ nitro; \ or \ cyano;$ 

wherein:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from N-

terminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan; and

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid;

wherein the first two amino acids of said hexapeptides are other than arginine-arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

- 25. The method of claim 24 wherein said microbe comprises Burkholderia cenacia.
- 26. A method for preventing, inhibiting, or terminating the growth of at least one microbe comprising administering an antimicrobial amount of a plurality of peptides and at least one carrier, wherein said peptides are each represented by Formula II:

Formula II

wherein:

X represents any amino acid except glutamate or aspartate;

n = 6;

 $R_1 \text{ is } C_1\text{-}C_{20} \text{ alkyl}; C_3\text{-}C_6 \text{ cycloalkyl}; C_4\text{-}C_{20} \text{ alkenyl}; C_4\text{-}C_{20} \text{ alkynyl}; C_1\text{-}C_{20} \text{ haloalkynyl}; C_2\text{-}C_{20} \text{ haloalkynyl}; C_2\text{-}C_{20} \text{ alkoxyalkyl}; C_2\text{-}C_{20} \text{ alkylthioalkyl}; C_2\text{-}C_{20} \text{ alkylsulfinylalkyl}; C_2\text{-}C_{20} \text{ alkylsulfinylalkyl}; C_2\text{-}C_{20} \text{ alkynyloxyalkyl}; C_3\text{-}C_{20} \text{ alkenyloxyalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkynyl}; C_4\text{-}C_{20} \text{ alkoxyalkynyl}; C_4\text{-}C_{20} \text{ alkylthioalkenyl}; C_4\text{-}C_{20} \text{ alkoxyalkynyl}; C_4\text{-}C_{20} \text{ alkylthioalkenyl}; C_4\text{-}C_{20} \text{ alkoxyalkynyl}; C_4\text{-}C_{20} \text{ alkylthioalkenyl}; C_4\text{-}C_{20} \text{ alkylthioalkenyl}; C_4\text{-}C_{20} \text{ alkylthioalkenyl}; C_4\text{-}C_{20} \text{ alkylthioxyalkyl}; C_4\text{-}C_{20} \text{ alkylthioxyalkyl};$ 

quinolinyl each optionally substituted with R<sub>5</sub>, R<sub>6</sub> or R<sub>7</sub>;

 $R_2 \ is \ C_1 - C_{20} \ alkyl; \ C_3 - C_6 \ cycloalkyl; \ C_4 - C_{20} \ alkenyl; \ C_4 - C_{20} \ alkynyl; \ C_1 - C_{20} \ haloalkynyl; \ C_2 - C_{20} \ alkoxyalkyl; \ C_2 - C_{20} \ alkylsulfinylalkyl; \ C_2 - C_{20} \ alkylsulfinylalkyl; \ C_2 - C_{20} \ alkylsulfinylalkyl; \ C_2 - C_{20} \ alkynyloxyalkyl; \ C_4 - C_{20} \ alkynylthioalkyl; \ C_4 - C_{20} \ alkoxyalkyl; \ C_4 - C_{20} \ alkoxyalkyl; \ C_4 - C_{20} \ alkoxyalkyl; \ C_4 - C_{20} \ alkoxyalkynyl; \ C_4 - C_{20} \ alkylthioalkynyl; \ C_4 - C_{20} \ alkylthioxyalkyl; \ C_4 - C_{20} \ alkylthioxyalkyl; \ C_4 - C_{20} \ alkylthioxyalkylthio; \ N_3 R_4, \ nitro, cyano, or phenyl optionally substituted with R_5, R_6, \ and R_7; \ C_7 - C_9 \ alkoxy; \ C_1 - C_{20} \ alkylthio; \ N_7 - C_{20} \ alk$ 

R<sub>3</sub> is independently hydrogen; C<sub>1</sub>-C<sub>4</sub> alkyl; or phenyl optionally substituted with at least one R<sub>4</sub>;

R<sub>4</sub> is independently hydrogen; C<sub>1</sub>-C<sub>8</sub> alkyl; or phenyl optionally substituted with at least one R<sub>4</sub>;

R<sub>5</sub> is independently C<sub>1</sub>-C<sub>6</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkyl; halogen; C<sub>2</sub>-C<sub>8</sub> alkynyl; C<sub>1</sub>-C<sub>6</sub> thioalkyl; phenyl or phenoxy each optionally substituted with at least one R<sub>8</sub>; cyano; nitro; C<sub>1</sub>-C<sub>6</sub> haloalkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkythio; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> haloalkenyl; acetyl; CO,CH<sub>3</sub>; or N(C<sub>1</sub>-C<sub>2</sub> alkyl)<sub>7</sub>;

 $R_{\delta}$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;  $R_{\gamma}$  is independently halogen; and

 $R_8 \ is \ independently \ halogen; \ C_1-C_4 \ alkyl; \ C_1-C_4 \ alkoxy; \ C_1-C_4 \ haloalkyl; \ nitro; \ or \ cvano.$ 

- 27. The method of claim 26 wherein said microbe comprises Burkholderia cepacia.
- 28. A composition for coating a substrate comprising an antimicrobial amount of a plurality of hexapeptides and at least one carrier, wherein for each hexapeptide:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan;

the amino acids in positions three through six, based on numbered amino acids from N-terminus to C-terminus, are any amino acid; and

wherein the first two amino acids of said hexapeptides are other than arginine-arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

29. A composition for coating a substrate comprising an antimicrobial amount of a plurality of peptides and at least one carrier, wherein each of said peptides are represented by Formula I:

> 0 || R1 \_\_\_ C \_\_\_ [(X)<sub>n</sub>] \_\_\_ NH<sub>2</sub>

Formula I

wherein:

X represents any amino acid except glutamate or aspartate;

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 $R_1 \text{ is } C_1\text{-}C_{20} \text{ alkyl; } C_3\text{-}C_6 \text{ cycloalkyl; } C_4\text{-}C_{20} \text{ alkenyl; } C_4\text{-}C_{20} \text{ alkynyl; } C_1\text{-}C_{20} \text{ haloalkyl; } C_3\text{-}C_{20} \text{ haloalkynyl; } C_2\text{-}C_{20} \text{ haloalkynyl; } C_2\text{-}C_{20} \text{ alkynyl; } C_2\text{-}C_{20} \text{ alkylthioalkyl; } C_2\text{-}C_{20} \text{ alkylthioalkyl; } C_2\text{-}C_{20} \text{ alkylsulfinylalkyl; } C_3\text{-}C_{20} \text{ cycloalkylalkyl; } C_4\text{-}C_{20} \text{ alkenyloxyalkyl; } C_4\text{-}C_{20} \text{ alkenyloxyalkyl; } C_4\text{-}C_{20} \text{ alkenylthioalkyl; } C_4\text{-}C_{20} \text{ alkynylthioalkyl; } C_4\text{-}C_{20} \text{ (cycloalkyl) thioalkyl; } C_2\text{-}C_{20} \text{ haloalkoxyalkyl; } C_4\text{-}C_{20} \text{ haloalkenyloxyalkyl; } C_4\text{-}C_{20} \text{ haloalkoxyalkyl; } C_4\text{-}C_{20} \text{ alkoxylalkenyl; } C_4\text{-}C_{20} \text{ alkoxylalkyl; } C_4\text{-}C_{20} \text{ alkoxylalkyl; } C_4\text{-}C_{20} \text{ alkylthioalkenyl; } C_4\text{-}C_{20} \text{ alkylthioalkynyl; } C_4\text{-}C_{20} \text{ trialkylsilylalkyl; } C_4\text{-}C_{20} \text{ alkoxylalkynyl; } C_4\text{-}C_{20} \text{ alkylthioalkenyl; } C_4\text{-}C_{20} \text{ alkylthioalkynyl; } C_4\text{-}C_{20} \text{ trialkylsilylalkyl; } C_4\text{-}C_{20} \text{ alkylthioalkenyl; } C_4\text{-}C_{20} \text{ alkylthioalke$ 

 $C_{20}$  alkyl substituted with  $NR_3R_4$ , nitro, cyano, or phenyl optionally substituted with  $R_5$ ,  $R_6$ , and  $R_7$ ;  $C_1-C_{20}$  alkoxy;  $C_1-C_{20}$  haloalkoxy;  $C_1-C_{20}$  alkylthio;  $C_1-C_{20}$  haloalkylthio;  $NR_3R_4$ ; or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with  $R_5$ ,  $R_6$  or  $R_7$ ;

$$\begin{split} R_2 & \text{ is } C_1\text{-}C_{20} \text{ alkyl; } C_3\text{-}C_6 \text{ eycloalkyl; } C_4\text{-}C_{20} \text{ alkenyl; } C_4\text{-}C_{20} \text{ alkynyl; } C_1\text{-}C_{20} \text{ haloalkynyl; } C_2\text{-}C_{20} \text{ haloalkenyl; } C_3\text{-}C_{20} \text{ haloalkenyl; } C_2\text{-}C_{20} \text{ alkylsulfinylalkyl; } C_2\text{-}C_{20} \text{ alkylsulfinylalkyl; } C_2\text{-}C_{20} \text{ alkenyloxyalkyl; } C_3\text{-}C_{20} \text{ alkenyloxyalkyl; } C_4\text{-}C_{20} \text{ alkoxyalkyl; } C_4\text{-}C_{20$$

 $R_3$  is independently hydrogen;  $C_1$ - $C_4$  alkyl; or phenyl optionally substituted with at least one  $R_8$ ;

 $R_4$  is independently hydrogen;  $C_1\text{-}C_8$  alkyl; or phenyl optionally substituted with at least one  $R_8$ ;

 $R_s \ is \ independently \ C_1-C_6 \ alkyl; \ C_1-C_6 \ alkoxy; \ C_1-C_6 \ haloalkyl; \ halogen; \ C_2-C_8 \ alkynyl; \ C_1-C_6 \ thioalkyl; \ phenyl \ or \ phenoxy \ each \ optionally \ substituted \ with \ at least \ one \ R_8; \ cyano; \ nitro; \ C_1-C_6 \ haloalkoxy; \ C_1-C_6 \ haloalkythio; \ C_2-C_6 \ alkenyl; \ C_2-C_6 \ haloalkenyl; \ acetyl; \ CO_2CH_3; \ or \ N(C_1-C_2 \ alkyl)_2;$ 

 $R_{\rm 6}$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;  $R_{\rm 7}$  is independently halogen; and

 $R_{*} \ is \ independently \ halogen; \ C_{1}\text{-}C_{4} \ alkyl; \ C_{1}\text{-}C_{4} \ alkoxy; \ C_{1}\text{-}C_{4} \ haloalkyl; \ nitro; or \ cyano;$ 

## wherein:

the amino acid in the first position, based on numbered amino acids from N-terminus to

C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan; and

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid;

wherein the first two amino acids of said hexapeptides are other than arginine-arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

30. A composition for coating a substrate comprising an antimicrobial amount of a plurality of peptides and at least one carrier, wherein each of said peptides are represented by Formula II:

Formula II

wherein:

X represents any amino acid except glutamate or aspartate;

n = 6.

 $R_1 \ is \ C_1-C_{20} \ alkyl; \ C_3-C_{20} \ cycloalkyl; \ C_4-C_{20} \ alkenyl; \ C_4-C_{20} \ alkynyl; \ C_1-C_{20} \ haloalkyl; \ C_2-C_{20} \ alkylsulfinylalkyl; \ C_4-C_{20} \ alkylsulfinylalkyl; \ C_4-C_{20} \ alkylsulfinylalkyl; \ C_4-C_{20} \ alkenyloxyalkyl; \ C_4-C_{20} \ alkoxyalkyl; \ C_4-C_{20} \ alkoxyalkyl; \ C_4-C_{20} \ alkylthioalkyl; \ C_4-C_{20} \ alkylthioalkylyl; \ C_4-C_{20} \$ 

phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with  $R_5$ ,  $R_9$  or  $R_7$ ;

 $R_{2} \text{ is } C_{1} - C_{20} \text{ alkyl}; C_{3} - C_{6} \text{ cycloalkyl}; C_{4} - C_{20} \text{ alkenyl}; C_{4} - C_{20} \text{ alkynyl}; C_{1} - C_{20} \text{ haloalkynyl}; C_{2} - C_{20} \text{ alkoxyalkyl}; C_{2} - C_{20} \text{ alkylthioalkyl}; C_{2} - C_{20} \text{ alkylsulfinylalkyl}; C_{2} - C_{20} \text{ alkylsulfinylalkyl}; C_{2} - C_{20} \text{ alkylsulfinylalkyl}; C_{2} - C_{20} \text{ alkynyloxyalkyl}; C_{4} - C_{20} \text{ alkenyloxyalkyl}; C_{4} - C_{20} \text{ alkoxyalkenyloxyalkyl}; C_{4} - C_{20} \text{ alkoxyalkenyloxyalkyl}; C_{4} - C_{20} \text{ alkoxyalkenyl}; C_{4} - C_{20} \text{ alkoxyalkynyl}; C_{4} - C_{20} \text{ alkylthioalkenyl}; C_{4} - C_{20} \text{ alkylthioalkenyl}; C_{4} - C_{20} \text{ alkylsubstituted with NR}_{3}R_{4}, \text{ nitro, cyano, or phenyl optionally substituted with R}_{5}, R_{6}, \text{ and R}_{7}; C_{1} - C_{20} \text{ alkoxy}; C_{1} - C_{20} \text{ alkylthio}; C_{1} - C_{20} \text{ haloalkylthio}; NR}_{3}R_{4}; \text{ or phenyl, benzyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with R}_{5}, R_{6} \text{ or R}_{7};$ 

 $R_3$  is independently hydrogen;  $C_1$ - $C_4$  alkyl; or phenyl optionally substituted with at least one  $R_*$ :

 $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one  $R_*$ :

 $R_s$  is independently  $C_1$ - $C_6$  alkyl;  $C_1$ - $C_6$  alkoxy;  $C_1$ - $C_6$  haloalkyl; halogen;  $C_2$ - $C_8$  alkynyl;  $C_1$ - $C_6$  thioalkyl; phenyl or phenoxy each optionally substituted with at least one  $R_8$ ; cyano; nitro;  $C_1$ - $C_6$  haloalkoxy;  $C_1$ - $C_6$  haloalkythio;  $C_2$ - $C_6$  alkenyl;  $C_2$ - $C_6$  haloalkenyl; acetyl;  $C_9$ - $C_8$ -C

 $R_{\rm 6}$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

R, is independently halogen; and

 $R_s \ is \ independently \ halogen; \ C_1\text{--}C_4 \ alkyl; \ C_1\text{--}C_4 \ alkoxy; \ C_1\text{--}C_4 \ haloalkyl; \ nitro; or evano.$ 

31. An antimicrobial composition comprising a plurality of peptides, wherein said peptides each are represented by Formula I:

Formula I

wherein:

X represents any amino acid except glutamate or aspartate;

n = 1-10;

 $R_1 \ is \ C_1 - C_{20} \ alkyl; \ C_3 - C_6 \ cycloalkyl; \ C_4 - C_{20} \ alkenyl; \ C_4 - C_{20} \ alkynyl; \ C_1 - C_{20} \ haloalkenyl; \ C_2 - C_{20} \ haloalkenyl; \ C_2 - C_{20} \ alkylsulfinylalkyl; \ C_2 - C_{20} \ alkylsulfinylalkyl; \ C_2 - C_{20} \ alkylsulfinylalkyl; \ C_2 - C_{20} \ alkynyloxyalkyl; \ C_4 - C_{20} \ alkynylthioalkyl; \ C_4 - C_{20} \ alkoxyalkyl; \ C_4 - C_{20} \ alkoxyalkyl; \ C_4 - C_{20} \ alkoxyalkynyl; \ C_4 - C_{20} \ alkylthioalkynyl; \ C_4 - C_{20} \ alkylthioxylthio; \ N_3 - N_6,$  and  $N_5 \ N_6 \$ 

 $R_3$  is independently hydrogen;  $C_1$ - $C_4$  alkyl; or phenyl optionally substituted with at least one  $R_*$ ;

 $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one  $R_8$ :

 $R_{s} \ is \ independently \ C_{1}\text{-}C_{6} \ alkyl; \ C_{1}\text{-}C_{6} \ alkoxy; \ C_{1}\text{-}C_{6} \ haloalkyl; \ halogen; \ C_{2}\text{-}C_{8} \ alkynyl; \\ C_{1}\text{-}C_{6} \ thioalkyl; \ phenyl \ or \ phenoxy \ each \ optionally \ substituted \ with \ at least \ one \ R_{s_{i}} \ cyano; \\ nitro; \ C_{1}\text{-}C_{6} \ haloalkoxy; \ C_{1}\text{-}C_{6} \ haloalkythio; \ C_{2}\text{-}C_{6} \ alkenyl; \ C_{2}\text{-}C_{6} \ haloalkenyl; \ acetyl; \\ CO_{2}\text{CH}_{3}; \ or \ N(C_{1}\text{-}C_{2} \ alkyl)_{2};$ 

 $R_6$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;  $R_7$  is independently halogen; and

 $R_{s} \ is \ independently \ halogen; \ C_{1}\text{-}C_{4} \ alkyl; \ C_{1}\text{-}C_{4} \ alkoxy; \ C_{1}\text{-}C_{4} \ haloalkyl; \ nitro; \ or \ cyano;$ 

wherein:

the amino acid in the first position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan:

the amino acid in the second position, based on numbered amino acids from Nterminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan; and

the amino acids in positions three through six, based on numbered amino acids from N-terminus to C-terminus, are any amino acid;

wherein the first two amino acids of said hexapeptides are other than arginine arginine, tryptophan-tryptophan, tryptophan-cysteine, tryptophan-lysine, arginine-tryptophan, or threonine-arginine.

32. An antimicrobial composition comprising a plurality of peptides, wherein said peptides each are represented by Formula II:

Formula II

wherein:

X represents any amino acid except glutamate or aspartate;

$$n = 1-10$$

 $R_1 \text{ is } C_1\text{-}C_{20} \text{ alkyl}; C_3\text{-}C_6 \text{ cycloalkyl}; C_4\text{-}C_{20} \text{ alkenyl}; C_4\text{-}C_{20} \text{ alkynyl}; C_1\text{-}C_{20} \text{ haloalkyl}; \\ C_2\text{-}C_{20} \text{ haloalkenyl}; C_3\text{-}C_{20} \text{ haloalkynyl}; C_2\text{-}C_{20} \text{ alkoxyalkyl}; C_2\text{-}C_{20} \text{ alkylsulfinoylalkyl}; C_2\text{-}C_{20} \text{ alkylsulfinylalkyl}; C_3\text{-}C_{20} \text{ alkylsulfinylalkyl}; C_4\text{-}C_{20} \text{ alkylsulfonylalkyl}; C_4\text{-}C_{20} \text{ alkenylthioalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkyl}; C_4\text{-}C_{20} \text{ alkoxyalkyl$ 

 $C_{20}$  alkyl substituted with  $NR_3R_4$ , nitro, cyano, or phenyl optionally substituted with  $R_5$ ,  $R_6$ , and  $R_7$ ;  $C_{1^{\circ}}C_{20}$  alkoxy;  $C_{1^{\circ}}C_{20}$  haloalkoxy;  $C_{1^{\circ}}C_{20}$  alkoxy;  $C_{1^{\circ}}C_{20}$  alkoxy;  $C_{1^{\circ}}C_{20}$  alkoxy; benzofuranyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with  $R_5$ ,  $R_6$ , or  $R_7$ ;

$$\begin{split} R_2 & \text{ is } C_1\text{-}C_{20} \text{ alkyl; } C_3\text{-}C_6 \text{ cycloalkyl; } C_4\text{-}C_{20} \text{ alkenyl; } C_4\text{-}C_{20} \text{ alkynyl; } C_1\text{-}C_{20} \text{ haloalkynyl; } C_1\text{-}C_{20} \text{ haloalkynyl; } C_2\text{-}C_{20} \text{ alkoxyalkyl; } C_2\text{-}C_{20} \text{ alkylthioalkyl; } C_2\text{-}C_{20} \\ & \text{alkylsulfinylalkyl; } C_2\text{-}C_{20} \text{ alkylsulfonylalkyl; } C_2\text{-}C_{20} \text{ cycloalkylalkyl; } C_4\text{-}C_{20} \text{ alkenylthioalkyl; } C_4\text{-}C_{20} \text{ alkenyloxyalkyl; } C_4\text{-}C_{20} \text{ alkenylthioalkyl; } C_4\text{-}C_{20} \text{ alkenylthioalkyl; } C_4\text{-}C_{20} \text{ alkynyloxyalkyl; } C_4\text{-}C_{20} \text{ alkenylthioalkyl; } C_4\text{-}C_{20} \\ & \text{alkynylthioalkyl; } C_4\text{-}C_{20} \text{ cycloalkyl) \text{ oxyalkyl; } C_4\text{-}C_{20} \text{ alkoxyalkenyl; } C_4\text{-}C_{20} \\ & \text{haloalkenyloxyalkyl; } C_4\text{-}C_{20} \text{ haloalkynyloxyalkyl; } C_4\text{-}C_{20} \text{ alkylthioalkenyl; } C_4\text{-}C_{20} \\ & \text{alkoxyalkynyl; } C_4\text{-}C_{20} \text{ alkylthioalkenyl; } C_4\text{-}C_{20} \text{ alkylthioalkynyl; } C_4\text{-}C_{20} \\ & \text{alkyl substituted with } NR_3R_4, \text{ nitro, cyano, or phenyl optionally substituted with } R_5, R_6, \\ & \text{and } R_7; C_1\text{-}C_{20} \text{ alkoxy; } C_1\text{-}C_{20} \text{ haloalkoxy; } C_1\text{-}C_{20} \text{ alkylthio; } C_1\text{-}C_{20} \text{ haloalkoxyl, or phenyl, pyridyl, furanyl, thienyl, naphthyl, pyrimidinyl, benzofuranyl, benzothienyl, or quinolinyl each optionally substituted with } R_5, R_6 \text{ or } R_7; \end{aligned}$$

R<sub>3</sub> is independently hydrogen; C<sub>1</sub>-C<sub>4</sub> alkyl; or phenyl optionally substituted with at least one R<sub>4</sub>;

 $R_4$  is independently hydrogen;  $C_1$ - $C_8$  alkyl; or phenyl optionally substituted with at least one  $R_4$ ;

 $R_5$  is independently  $C_1$ - $C_6$  alkyl;  $C_1$ - $C_6$  alkoxy;  $C_1$ - $C_6$  haloalkyl; halogen;  $C_2$ - $C_8$  alkynyl;  $C_1$ - $C_6$  thioalkyl; phenyl or phenoxy each optionally substituted with at least one  $R_8$ ; cyano; nitro;  $C_1$ - $C_6$  haloalkoxy;  $C_1$ - $C_6$  haloalkythio;  $C_2$ - $C_6$  alkenyl;  $C_2$ - $C_6$  haloalkenyl; acetyl;  $C_3$ - $C_6$  haloalkoxy;  $C_1$ - $C_6$  haloalkythio;  $C_2$ - $C_6$  alkenyl;  $C_3$ - $C_6$  haloalkenyl; acetyl;  $C_3$ - $C_6$  haloalkyl);

 $R_{s}$  is independently methyl; ethyl; methoxy; methylthio; halogen; or trifluoromethyl;

R7 is independently halogen; and

 $R_8$  is independently halogen;  $C_1$ - $C_4$  alkyl;  $C_1$ - $C_4$  alkoxy;  $C_1$ - $C_4$  haloalkyl; nitro; or cyano;

wherein:

the amino acid in the first position, based on numbered amino acids from N-terminus to

C-terminus, is selected from the group consisting of arginine, lysine, methionine, serine, threonine and tryptophan;

the amino acid in the second position, based on numbered amino acids from N-terminus to C-terminus, is selected from the group consisting of arginine, histidine, cysteine, threonine, tyrosine, and tryptophan; and

the amino acids in positions three through six, based on numbered amino acids from Nterminus to C-terminus, are any amino acid.

- 33. The antimicrobial composition of claim 31 further comprising a carrier selected from the group consisting of a pharmaceutically acceptable carrier, an industrially acceptable carrier, a household product, and a personal care composition.
- 34. The antimicrobial composition of claim 32 further comprising a carrier selected from the group consisting of a pharmaceutically acceptable carrier, an industrially acceptable carrier, a household product, and a personal care composition.